	Application No.	Applicant(s)
Notice of Allowability	10/719,484	CHEN ET AL.
	Examiner	Art Unit	
	David E. Martinez	2181	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *12/26/2006*.

2. ☒ The allowed claim(s) is/are *2-3, 7, 8, 10,12-13, 17-18, 20, 22-23, 27-28 and 30*.

3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some*   c)☐ None   of the:

        1. ☐ Certified copies of the priority documents have been received.

        2. ☐ Certified copies of the priority documents have been received in Application No. _____ .

        3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

    * Certified copies not received: _____ .

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application. **THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.

    (a)☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached

        1)☐ hereto or 2)☐ to Paper No./Mail Date _____ .

    (b)☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of

        Paper No./Mail Date _____ .

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)

2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)

3. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____

4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material

5. ☐ Notice of Informal Patent Application

6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____ .

7. ☒ Examiner's Amendment/Comment

8. ☒ Examiner's Statement of Reasons for Allowance

9. ☐ Other _____ .

Terminal Disclaimer

The terminal disclaimer filed on 2/27/07 disclaiming the terminal portion of any patent

granted on this application which would extend beyond the expiration date of any patent granted

on Application Number 10/779,215 has been reviewed and is accepted. The terminal disclaimer

has been recorded.

EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or

additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR

1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the

payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with

Dale Regelman (Reg. No. 45,625) on 2/28/07 and 3/5/07 in order to overcome an art rejection

to US Patent Application Publication No. US 2005/0080895 A1 to Cook et al., and to overcome

a 101 rejection to the independent claims of the case, which prior to this examiner's amendment

lacked a tangible result. This examiner's amendment corrects the above deficiencies as well as

some typos and minor grammar errors.

The application has been amended as follows:

1.   Claims 1, 4, 5, 6, 9, 11, 14, 15, 16, 19, 21, 24, 25, 26 and 29 have been cancelled.

2.   Claim 2 has been deleted and has been replaced with:

--- A method to provide information from a first information storage and retrieval system

to a second information storage and retrieval system, comprising the steps of:

providing said first information storage and retrieval system, wherein said first

information storage and retrieval system comprises (N) PPRC adapters, a plurality of host

adapters, at least one host computer interconnected with at least one of said plurality of host

adapters, a cache, a plurality of device adapters, a plurality of disk drives interconnected with said plurality of device adapters, and information;

providing said second information storage and retrieval system, wherein said second information storage and retrieval system is capable of receiving said information from said first information storage and retrieval system via one or more of said (N) PPRC adapters;

ascertaining, for each value of (j), if the (j)th PPRC adapter is in communication with said second information storage and retrieval system, wherein (j) is greater than or equal to 1 and less than or equal to (N);

operative if the (j)th PPRC adapter is in communication with said second information storage and retrieval system, including said (j)th PPRC adapter as one of (M) tested adapters, wherein (M) is less than or equal to (N);

generating a PPRC task comprising a flag, wherein said flag is set to "off";

selecting the (i)th tested adapter, wherein (i) is greater than or equal to 1 and less than or equal to (M), and wherein (i) is initially set to 1;

providing said information to said second information storage and retrieval system using said (i)th tested adapter;

determining if said information was received by said second information storage and retrieval system using said (i)th tested adapter;

operative if said information was not received by said second information storage and retrieval system using said (i)th tested adapter, establishing if (i) equals (M);

operative if (i) does not equal (M):

incrementing (i);

repeating said selecting step, said providing step, said determining step, and said incrementing step. ---.

3.   In claim 7, line 1, the term "method of claim 4, further" has been deleted and has been

replaced with the term --- method of claim 3, further ---.

4.   In claim 7, line 3, the term "(M) tested adapters, choosing" has been deleted and has

been replaced with the term --- (M) tested adapters setting said flag to "on" and choosing ---.

5.   Claim 7 has been deleted and has been replaced with:

        --- The method of claim 3, further comprising the steps of:

        operative if said information was not provided to said second information storage and

        retrieval system using any of said (M) tested adapters setting said flag to "on" and

        choosing the (k)th PPRC adapter, wherein (k) is greater than or equal to 1 and less than

        or equal to (N), and wherein (k) is initially set to 1;

        sending said information to said second information storage and retrieval system using

        said (k)th PPRC adapter. ---.

6.   In claim 8, line 9, the term "verifying step, and optionally said increasing step." has been

deleted and has been replaced with the term --- verifying step, and said increasing step. ---.

7.   Claim 12 has been deleted and has been replaced with:

        --- An article of manufacture comprising a computer readable-medium having computer

readable program code disposed therein to provide information from a first information storage

and retrieval system to a second information storage and retrieval system, wherein said first

information storage and retrieval system comprises (N) PPRC adapters, a plurality of host

adapters, at least one host computer interconnected with at least one of said plurality of host

adapters, a cache, a plurality of device adapters, a plurality of disk drives interconnected with

said plurality of device adapters, and information, and wherein said second information storage

and retrieval system is capable of receiving said information from said first information storage

and retrieval system via one or more of said (N) PPRC adapters, the computer readable

program code comprising a series of computer readable program steps to effect:

ascertaining, for each value of (j), if the (j)th PPRC adapter is in communication with said

second information storage and retrieval system, wherein (j) is greater than or equal to 1 and

less than or equal to (N);

operative if the (j)th PPRC adapter is in communication with said second information

storage and retrieval system, including said (j)th PPRC adapter as one of (M) tested adapters,

wherein (M) is less than or equal to (N);

generating a PPRC task comprising a flag, wherein said flag is set to "off";

selecting the (i)th tested adapter, wherein (i) is greater than or equal to 1 and less than

or equal to (M), and wherein (i) is initially set to 1;

providing said information to said second information storage and retrieval system using

said (i)th tested adapter;

determining if said information was received by said second information storage and

retrieval system using said (i)th tested adapter;

operative if said information was not received by said second information storage and

retrieval system using said (i)th tested adapter, establishing if (i) equals (M);

operative if (i) does not equal (M):

incrementing (i);

repeating said selecting step, said providing step, said determining step, and said

incrementing step. ---.

8.   In claim 17, line 1, the term "article of manufacture of claim 14, said" has been deleted

and has been replaced with the term --- article of manufacture of claim 13, said ---.

9.   In claim 17, line 5, the term "(M) tested adapters, choosing" has been deleted and has
been replaced with the term --- (M) tested adapters, setting said flag to "on" and choosing---.

10.   In claim 18, line 11, the term "verifying step, and optionally said increasing step." has
been deleted and has been replaced with the term --- verifying step, and said increasing step. ---
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11.   Claim 22 has been deleted and has been replaced with:

--- A computer program product encoded in an information storage medium, said
computer program product being usable with a programmable computer processor to provide
information from a first information storage and retrieval system to a second information storage
and retrieval system, wherein said first information storage and retrieval system comprises (N)
PPRC adapters, a plurality of host adapters, at least one host computer interconnected with at
least one of said plurality of host adapters, a cache, a plurality of device adapters, a plurality of
disk drives interconnected with said plurality of device adapters, and information, and wherein
said second information storage and retrieval system is capable of receiving said information
from said first information storage and retrieval system via one or more of said (N) PPRC
adapters, comprising:

computer readable program code which causes said programmable computer processor
to ascertain, for each value of (j), if the (j)th PPRC adapter is in communication with said second
information storage and retrieval system, wherein (j) is greater than or equal to 1 and less than
or equal to (N);

computer readable program code which, if the (j)th PPRC adapter is in communication
with said second information storage and retrieval system, causes said programmable computer
processor to include said (j)th PPRC adapter as one of (M) tested adapters, wherein (M) is less
than or equal to (N);

computer readable program code which causes said programmable computer processor to generate a PPRC task comprising a flag, wherein said flag is set to "off";

computer readable program code which causes said programmable computer processor to select the (i)th tested adapter, wherein (i) is greater than or equal to 1 and less than or equal to (M), and wherein (i) is initially set to 1;

computer readable program code which causes said programmable computer processor to provide information to said second information storage and retrieval system using said (i)th tested adapter;

computer readable program code which causes said programmable computer processor to determine if said information was received by said second information storage and retrieval system using said (i)th tested adapter;

computer readable program code which, if said information was not received by said second information storage and retrieval system using said (i)th tested adapter, causes said programmable computer processor to sequentially increment (i) and provide said information to said second information storage and retrieval system using, for each incremental value of (i), the (i)th tested adapter until said information is received by said second information storage and retrieval system or until (i) equals (M). ---.

12.   In claim 27, line 1, the term "program product of claim 24; further" has been deleted and has been replaced with the term --- program product of claim 23, further ---.

13.   In claim 27, line 5, the term "computer processor to choose the (k)th PPRC" has been deleted and has been replaced with the term --- computer processor to set said flag to "on" and choose the (k)th PPRC ---.

14.   In claim 28, line 8, the term "processor to sequentially increment (k) and attempt sending

said" has been deleted and has been replaced with the term --- processor to sequentially

increment (k) and send said ---.

Allowable Subject Matter

Claims 2-3, 7, 8, 10,12-13, 17-18, 20, 22-23, 27-28 and 30 are allowed over the prior art

of record.

The following is an examiner's statement of reasons for allowance:

With regards to claims 2, 12 and 22, the prior art of record alone or in combination fail to

teach or fairly suggest generating a PPRC task comprising a flag, wherein said flag is set to

"off"; selecting the i(th) tested adapter, wherein (i) is greater than or equal to 1 and less than or

equal to (M), and wherein (i) is initially set to 1; and providing said information to said second

information storage and retrieval system using said (i)th tested adapter, in combination with the

other limitations within each of the respective claims.

The following is a discussion of the most relevant prior art found:

US Patent Application Publication No. US 2005/0080895 A1 to Cook et al. teaches a first

and a second information storage and retrieval systems, each being interconnected to the other

through the use of PPRC adapters. The first and second information storage and retrieval

systems send each other heartbeats through the PPRC adapters and determine if the PPRC

communication links are operational or not.

Any comments considered necessary by applicant must be submitted no later than the

payment of the issue fee and, to avoid processing delays, should preferably accompany the

issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons
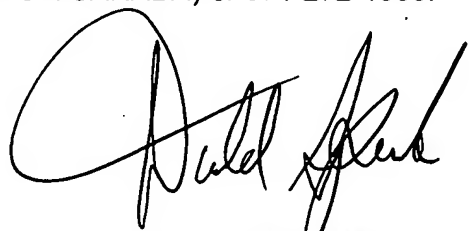
for Allowance."

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David E. Martinez whose telephone number is (571) 272-4152. The examiner can normally be reached on 8:30-5:00 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Donald Sparks can be reached on 571-272-4201. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

DEM

DONALD SPARKS
SUPERVISORY PATENT EXAMINER